

1. $\int \frac{1}{u} du$ $\ln|u| + C$
2. $\int \frac{1}{1+u^2} du$ $\tan^{-1} u + C$
3. $\int \cos u du$ $\sin u + C$
4. $\int \sec u du$ $\ln|\sec u + \tan u| + C$
5. $\int a^u du$ $\frac{a^u}{\ln a} + C$

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review is Euler's method

used to estimate solution to
initial value problemgiven $\frac{dy}{dx}$ & init. conditions
 (x_0, y_0) find final conditions
 (x_n, y_n)

$$y_{n+1} = y_n + f(x, y) \cdot \Delta x$$

↑
given

	x	y	y'
	x_0	y_0	
Δx	x_1		
Δx	x_2		
\vdots	x_3		
	\vdots		
	x_n		

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$$f'(x) = x + y \quad y = 3 \text{ when } x = 0$$

find y when $x = .3$

use a stepsize
of .1

x	y	y'
0	3	3
.1	3.3	3.4
.2	3.64	3.84
.3	4.024	

$$3 + 3 \cdot (.1)$$

$$3.3 + 3.4 \cdot (.1)$$

$$3.64 + 3.84 \cdot (.1)$$

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